

## ANSWERS: Lewis structures practice

$\begin{array}{c} \text{H} \\ \vdots \\ \text{H}:\text{C}:\text{H} \\ \vdots \\ \text{H} \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{As} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{H} \end{array}$		
$\begin{array}{c} \text{H} - \text{P} - \text{H} \\   \\ \text{H} \end{array}$ OR $\begin{array}{c} \text{H} : \text{P} : \text{H} \\ \vdots \\ \text{H} \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{O} = \text{C} = \text{O} \\ \cdot\cdot \end{array}$ OR $\begin{array}{c} \cdot\cdot \\ \text{O} :: \text{C} :: \text{O} \\ \cdot\cdot \end{array}$	$\begin{array}{c} \text{H} \\ \diagdown \\ \text{C} = \text{O} \\ \diagup \\ \text{H} \end{array}$ OR $\begin{array}{c} \text{H} : \text{C} : \text{O} \\ \vdots \\ \text{H} \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{Cl} : \text{O} : \text{Cl} \\ \cdot\cdot \end{array}$
$\begin{array}{c} \cdot\cdot \\ \text{O} :: \text{O} \\ \cdot\cdot \end{array}$	$\begin{array}{c} \text{H} \\ \vdots \\ \text{H} : \text{C} : \text{Br} \\ \vdots \\ \text{H} \end{array}$ OR replace the Br atoms with Cl atoms	$\begin{array}{c} \cdot\cdot \\ \text{O} :: \text{S} :: \text{O} \\ \cdot\cdot \end{array}$ accepted but not actually correct (see note below) OR $\begin{array}{c} \cdot\cdot \\ \text{O} :: \text{S} :: \text{O} \\ \cdot\cdot \end{array}$ ↑	$\begin{array}{c} \cdot\cdot \\ \text{Cl} : \\ \cdot\cdot \\ \text{Cl} : \text{Si} : \text{Cl} : \\ \cdot\cdot \\ \text{Cl} : \\ \cdot\cdot \end{array}$
$\begin{array}{c} \text{H} - \text{O} : \\   \\ \text{H} \end{array}$	$\begin{array}{c} \text{H} \\   \\ \text{Br} - \text{C} - \text{H} \\   \\ \text{Br} \end{array}$ OR replace the Br atoms with Cl atoms	$\begin{array}{c} \cdot\cdot \\ \text{S} = \text{C} = \text{S} \\ \cdot\cdot \end{array}$	$\text{H} - \text{C} \equiv \text{N} :$
$\begin{array}{c} \cdot\cdot \\ \text{O} = \text{X} = \text{O} \\ \cdot\cdot \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{O} - \text{Y} = \text{O} \\ \cdot\cdot \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{Cl} - \text{N} - \text{Cl} \\ \vdots \\ \text{Cl} \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{F} - \text{S} - \text{F} \\ \cdot\cdot \end{array}$
$\begin{array}{c} \cdot\cdot \\ \text{Br} : \\ \vdots \\ \text{Br} - \text{P} - \text{Br} \\ \vdots \\ \text{Br} \end{array}$ OR replace the Br atoms with Cl atoms	$\begin{array}{c} \text{H} \\ \vdots \\ \text{H} - \text{S} - \text{H} \\ \vdots \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{Cl} \diagdown \\ \text{C} = \text{O} \\ \diagup \\ \text{Cl} \end{array}$	$\begin{array}{c} \cdot\cdot \\ \text{F} - \text{O} - \text{F} \\ \cdot\cdot \end{array}$ OR $\begin{array}{c} \cdot\cdot \\ \text{F} : \text{O} : \text{F} \\ \cdot\cdot \end{array}$

There is still debate regarding the correct structure of  $\text{SO}_2$ , most chemists suggest the S atom is an "expanded octet", this is Level 3 NCEA